



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
2443 WARRENVILLE RD. SUITE 210
LISLE, IL 60532-4352

July 30, 2018

Mr. Bryan C. Hanson
Senior VP, Exelon Generation Company, LLC
President and CNO, Exelon Nuclear
4300 Winfield Road
Warrenville, IL 60555

**SUBJECT: DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3—NRC TEMPORARY
INSTRUCTION 2515/193, IMPLEMENTATION OF RELIABLE HARDENED
CONTAINMENT VENTS INSPECTION REPORT 05000237/2018014
AND 05000249/2018014**

Dear Mr. Hanson:

On July 26, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed a Temporary Instruction 2515/193, "Inspection of the Implementation of EA-13-109: Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions" inspection at your Dresden Nuclear Power Station, Units 2 and 3. On July 26, 2018, the NRC inspectors discussed the results of this inspection with Mr. John Washko and other members of your staff. The results of this inspection are documented in the enclosed report.

The inspection examined activities conducted under your license as they relate to the implementation of the Reliable Hardened Containment Vents order EA-13-109, your compliance with the Commission's rules and regulations, and with the conditions of your operating license. Within these areas, the inspection involved examination of selected procedures and records, observation of activities, and interviews with station personnel.

The NRC inspectors did not identify any findings or violations during this inspection.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Ann Marie Stone, Team Leader
Technical Support Branch
Division of Reactor Projects

Docket Nos. 50-237; 50-249
License Nos. DPR-19; DPR-25

Enclosure:
IR 05000237/2018014; 05000249/2018014

cc: Distribution via LISTSERV®

Letter to Bryan Hanson from Ann Marie Stone dated July 30, 2018

SUBJECT: DRESDEN NUCLEAR POWER STATION, UNITS 2 AND 3—NRC TEMPORARY INSTRUCTION 2515/193, IMPLEMENTATION OF RELIABLE HARDENED CONTAINMENT VENTS INSPECTION REPORT 05000237/2018014 AND 05000249/2018014

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**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

REGION III

Docket Numbers: 50–237; 50–249;

License Numbers: DPR–19; DPR–25

Report Numbers: 05000237/2018014; 05000249/2018014

Enterprise Identifier: I–2018–014–0001

Licensee: Exelon Generation Company, LLC

Facility: Dresden Nuclear Power Station, Units 2 and 3

Location: Morris, IL

Dates: July 23 through July 26, 2018

Inspectors: S. Sheldon, Project Engineer
R. Alexander, Senior Project Engineer
B. Bishop, Project Engineer
Observer: K. Roche, Project Manager
Observer: B. Lee, Reactor Systems Engineer

Approved by: A. Stone, Team Leader
Technical Support Staff
Division of Reactor Projects

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring licensee’s performance by conducting a Temporary Instruction 2515/193, “Inspection of the Implementation of EA-13-109: Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions,” inspection at Dresden Nuclear Power Station, Units 2 and 3 in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC’s program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information. Additional items are summarized in the table below.

List of Findings and Violations

No findings were identified.

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
TI	2515/193	Inspection of the Implementation of EA–13–109: Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions	Other Activities	Closed

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

OTHER ACTIVITIES—TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

Temporary Instruction 2515/193—Inspection of the Implementation of EA–13–109: Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation Under Severe Accident Conditions

The inspectors verified plans for complying with NRC Order EA–13–109, “Order Modifying Licenses with regard to Reliable Hardened Containment Vents Capable of Operation under Severe Accident Conditions, (Agencywide Documents Access and Management System (ADAMS) Accession No. [ML13143A321](#)) are in place and are being implemented by the licensee.

- (1) Based on samples selected for review, the inspectors verified the licensee satisfactorily implemented appropriate elements of the reliable hardened containment wetwell vent system (HCVS) as described in the plant specific submittals and the associated safety evaluation (ADAMS Accession No. [ML18079A382](#)) and determined the licensee is in compliance with NRC Order EA–13–109 Phase 1, “Reliable, Severe Accident Capable Wetwell Venting System”. The inspectors verified the licensee satisfactorily:
 - a) Installed the HCVS to meet the performance objectives outlined in Section A.1.1 of Attachment 2 to the Order EA–13–109;
 - b) Installed the HCVS system with the design features specified in Section A.1.2 of Attachment 2 to the Order EA–13–109;
 - c) Designed the HCVS to meet the quality standards described in Section A.2 of Attachment 2 to the Order EA–13–109;
 - d) Developed and implemented adequate maintenance and testing of HCVS equipment to ensure their availability and capability;
 - e) Developed and issued procedures to safely operate the HCVS using normal power supplies, during an extended loss of AC power (ELAP), and during a postulated severe accident scenario, and integrated the procedures into existing plant procedures; and
 - f) Trained their staff to assure personnel can proficiently operate the HCVS.
- (2) Based on samples selected for review, the inspectors verified the licensee satisfactorily implemented appropriate elements of the reliable wetwell venting strategy as described in the plant specific submittals and the associated safety evaluation and determined the licensee is in compliance with NRC Order EA–13–109 Phase 2, “Reliable, Severe Accident

Capable Drywell (or alternative strategy) Venting System". The inspectors verified the licensee satisfactorily developed a strategy making it unlikely that the licensee would need to vent from the containment drywell that included the following:

- a) Implemented the severe accident water addition (SAWA) and severe accident water management (SAWM) systems as defined and fulfilled functional requirements for installed and portable equipment;
- b) Installed and/or identified the previously-installed instrumentation necessary to implement SAWM;
- c) Developed and implemented adequate maintenance and testing of SAWA/SAWM equipment to ensure availability and capability;
- d) Developed and issued procedures to safely operate the SAWA/SAWM during an ELAP and during postulated severe accident scenario, and integrated their procedures into their existing plant procedures such that entry into and exiting from the procedures are clear when using existing plant procedures; and
- e) Trained their staff to assure personnel can proficiently operate the HCVS during an ELAP and accident scenario.

The inspectors verified noncompliances with requirements, and standards identified during the inspection were entered into the licensee's corrective action program as appropriate. The corrective action program documents generated as a result of the inspection are listed in the Documents Reviewed section of this inspection report.

INSPECTION RESULTS

No findings or violations were identified. This TI is considered closed.

EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On July 26, 2018, the inspectors presented the Temporary Instruction 2515/193 inspection results to Mr. John Washko, and other members of the licensee staff.

DOCUMENTS REVIEWED

Temporary Instruction 2515/193

- 5.1.10 SAWA Pump Test Reports
- 50.59/Applicability Review for CC-DR-118, Site Implementation of FLEX and SFP Instrumentation Program, Revision 2; 06/30/2017
- 50.59/Applicability Review for CC-DR-118-1003, Dresden FLEX Final Integration Plan, Revision 1; 06/30/2017
- AR 02563109; SAMG Project, Hardened Vent SAMG/TSG Implementation Plan; 09/30/2015
- AR 02585801; EOP Project - EPG/SAG Issue 1314 SAWA/SAWM Strategy; 11/11/2015
- AR 03971747; HCVS Valve Documentation; 02/08/2017
- AR 03990974; OP Project - EOP/SAMG/TSG Changes for HCVS/AREVA Fuel; 03/29/2017

- AR 03994342; Low Pressure In Argon Bank A for HCVS; 04/05/2017
- AR 04007221; HCVS Requirement: Implementing SAMG Actions from MCR; 05/05/2017
- AR 04041267; EPC Issue 1703, Maintaining Torus Level for SAWA/SAWM; 08/11/2017
- AR 04073940; Several Small Air Leaks Identified During HCVS Testing; 11/12/2017
- AR 04078616; NRC FLEX Inspection Identified Issue FLEX/SAWA Manifold Cart; 11/28/2017
- AR 04097924; Low Pressure In Argon Bank A While Performing DOS 10-47; 01/28/2018
- AR 04136795; HCVS FASA: Review SAWA/SAWM Flow Paths and Stroke Valves; 05/11/2018
- AR 04143712; Unit 3 HCVS Issues; 06/02/2018
- AR 04158849; 2018 NRC HCVS Suggested Enhancements; 07/25/2018
- CC-DR-118; Site Implementation of Diverse and Flexible Coping Strategies (FLEX) and Spent Fuel Pool Instrumentation Program; Revision 3
- DOA 0010-01; Dresden Lock and Dam Failure; Revision 36
- DOS 0010-47; Operations Monthly FLEX Inspections; Revision 8
- DOS 1600-34; Hardened Containment Vent System Test; Revision 2
- DOS 1600-36; Hardened Containment Vent System Rupture Disc Integrity Test; Revision 2
- DOS 1600-37; HCVS/SAWA Operating Cycle Walkdown; Revision 1
- DRE16-001; FLEX Activity and Phase 2 Dose Assessment; Revision 1
- DRE16-001; FLEX Activity and Phase 2 Dose Assessment; Revision 1A
- DRE296LN001-LORT-17-01; Severe Accident Water Addition / Severe Accident Water Management; 07/2017
- EC 619368; Hardened Containment Vent System Argon Maintenance Pressure
- Final Integrated Plan HCVS Order EA-13/109
- FLEX – ILT Gap Training Presentation; 2017
- FSG-01; Extended Loss of AC Power / Loss of Ultimate Heat Sink Flowchart; Revision 2
- FSG-01-01; SAWA / HCVS Flowchart; Revision 00
- FSG-04; Aligning FLEX Pumps for Operation; Revision 3
- FSG-09; Ultimate Heat Sink Supply to FLEX/SAWA Manifold; Revision 3
- FSG-10; FLEX Spent Fuel Pool Make-Up; Revision 4
- FSG-15; Hardened Containment Vent Operation; Revisions 2,3
- FSG-38; FLEX Auxiliary Equipment Deployment; Revision 5
- HCVS JITT (Just In Time Training); Revision 1
- HCVS Self-Assessment Report
- IPT 2017-01E; FSG-15 In-Plant Walkthrough; 01/2017
- Lesson ID 295L-S10; Hardened Containment Vent System; 07/2016
- Lesson ID IM-HCVRM; Dresden Hardened Containment Vent System Radiation Monitor; 06/28/2017
- LORT Classroom & Simulator Training Matrix; 2017-2019
- OP-DR-102-106; Operator Response Time Program at Dresden; Revision 9
- SAWA Pump & Crane Assembly 2017 PPT; 2017
- WO 01811136-11; OP LLRT of 3-1601-93 Vent Valve Per EC 401069; 11/15/2016
- WO 01811136-16; OP Leak Test 3-1601-93 Valve/Rupture Disk; 11/15/2016
- WO 01828211-12; OP LLRT of 2-1601-93 Vent Valve Per EC 400930; 11/14/2017
- WO 01828211-24; OP Leak Test 2-1601-93 Valve/Rupture Disk; 11/14/2017
- WO 1876935-01; D2 30M/RFL TS LLRT Vlv 1601-24, 63 & Flanges; 11/05/2017
- WO 1898265-01; D3 30M/RFL TS LLRT Vlv 1601-24, 63 & Flanges; 11/08/2016
- WO 1957148; D2/3 1Y OPS Flex Equipment Inventory Check; 10/16/2017
- WO 1967251; D2/3 24M COM Perform Thermography HCVS Battery Charger 1A; 03/09/2018
- WO 1967259; D2/3 QTR COM HCVS 125V Battery Surveillance; 02/13/2017
- WO 1967260; D2/3 12M COM HCVS 125V Battery Surveillance; 11/19/2017
- WO 4600911; D2/3 QTR COM HCVS 125V Battery Surveillance; 05/18/2017

- WO 4689878; D2/3 1M COM HCVS 125V Battery Surveillance; 10/20/2017
- WO 4703171; D2/3 1M COM HCVS 125V Battery Surveillance; 11/20/2017
- WO 4715807; D2/3 1M COM HCVS 125V Battery Surveillance; 12/21/2017
- WO 4716678; D2/3 1M COM HCVS 125V Battery Surveillance; 02/26/2018
- WO 4722633; D3 90D COM Calibrate O2 Monitor for HCVS Remote Operating Station; 3/21/18
- WO 4739383; D2/3 1M COM HCVS 125V Battery Surveillance; 02/26/2018
- WO 4741739; D2/3 1M OPS Flex Inspections; 02/26/2018
- WO 4762819; D3 90D COM Calibrate O2 Monitor for HCVS Remote Operating Station; 06/02/2018